

CLAIMS

1. A bare sheet or galvanized steel sheet, which is furthermore coated on at least one of its faces with a
5 single layer of zinc or zinc alloy containing 0.15 to 1% by weight of a polymer consisting of 6 to 150 identical or different units, of general formula:



10 where R = H or CH₃, and optionally including polyallyl units.

2. The sheet as claimed in claim 1, wherein said layer contains from 0.15 to 0.60% by weight of said polymer.

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3. The sheet as claimed in claim 1 or 2, wherein said single layer of zinc or zinc alloy containing said polymer is in turn covered with a layer of an organic coating chosen from the group formed by polyurethanes, 20 epoxy resins, polyesters and blends thereof, it being possible for said organic coating to furthermore include electrically conductive particles.

4. The sheet as claimed in any one of claims 1 to 3, 25 which comprises, in succession:

- a steel layer; then
- a single layer of zinc or zinc alloy containing said polymer; and then
- a layer based on an epoxy resin, to which may 30 optionally be added a polyurethane resin, said layer based on an epoxy resin optionally including electrically conductive particles.

5. The sheet as claimed in claim 4, wherein said sheet furthermore includes a zinc layer inserted between said steel layer and said single layer of zinc or zinc alloy containing said polymer.

6. The sheet as claimed in any one of claims 1 to 3, which comprises, in succession:

- a steel layer; then
- a single layer of zinc or zinc alloy containing 5 said polymer; and then
 - a polyurethane-based layer that optionally includes electrically conductive particles.

7. The sheet as claimed in claim 6, wherein said 10 sheet furthermore includes a zinc layer inserted between said steel layer and said single layer of zinc or zinc alloy containing said polymer.

8. The sheet as claimed in any one of claims 1 to 7, 15 wherein said polymer consists of at least 80 identical or different units.

9. The sheet as claimed in claim 8, wherein said 20 polymer consists of 20 to 30 identical or different units.

10. A process for manufacturing a sheet as claimed in any one of claims 1 to 9, wherein a sheet of bare steel or of galvanized steel is made to run through an 25 electroplating bath that contains zinc sulfate, at least one support salt, 0.8 to 1.2 g/l of a polymer consisting of 6 to 150 identical or different units, of general formula $-(\text{CH}_2-\text{C}(\text{R})\text{CONH}_2)-$ with R = H or CH_3 , and that optionally includes polyallyl units, said bath 30 having a pH lying between 0 and 3, and an electroplating current is made to pass between said sheet and at least one anode placed in said bath, with an approximately constant mean current density of between 60 and 160 A/dm^2 .

35 11. The process as claimed in claim 10, wherein the polymer concentration in the electroplating bath is between 0.9 and 1.1 g/l.

12. The process as claimed in claim 10 or 11, wherein said bare steel or galvanized steel sheet is made to run through the electroplating bath at a speed of between 50 and 150 m/min.

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13. The process as claimed in any one of claims 10 to 12, wherein the Zn^{2+} ion concentration is between 40 and 100 g/l.

10 14. The process as claimed in any one of claims 10 to 13, wherein the temperature of the electroplating bath is between 30 and 70°C.

15 15. The process as claimed in any one of claims 10 to 14, wherein the mean current density is less than 120 A/dm².